AMENDMENTS TO THE SPECIFICATION:

Please replace paragraph 31 on page 8 with the following replacement paragraph:

Further, depending on the geometrical shape of the support and its power requirement to provide sufficient heat energy, any other partially conductive materials with electrical resistivities ~~resistances~~ in the range of about 1 to 500 Ohms-cm ~~ohm/square~~ and more particularly about 5 to about 100 Ohms-cm ~~ohm/square~~ can be used. These materials can be mixed with the graphite, carbon nanotubes, activated carbon granules, and carbonaceous adsorbents as described above in amounts of about 1 to 10% by ~~of~~ weight. Preferably, these materials are reduced metal oxides such as, but not limited to, TiO_2, ZrO_2, SiO_2, MgO, Al_2O_3, ZnO, etc. More particularly it is possible to enhance the efficiency of the conductive graphite, carbon nanotubes, activated carbon granules, and carbonaceous adsorbents supports by doping the supports with particles of metal oxides in a more oxygen reduced state, (such as CuO to Cu_2O or ZnO to $ZnO_{1-m,\ m<1}$, etc.), thereby increasing their electropositivity when exposed to thermal or electrical energies. Some preferred support materials can be prepared by in situ oxidation of nitrate salts of transition metals to precipitate the oxides within, for example, micropores of a resin bead, a carbon fiber or nanotube. This results in electrically conductive materials with a high surface area. Use of graphite or fibrillated carbon as electrodes are described in United States Patent No. 4,046,663 (herein incorporated by reference), and these materials can be used as a support in some embodiments of the invention. An example of a carbon fiber is the GRAFIL™ brand carbon fibers manufactured by Courtaulds, Ltd., Carbon Fibers Unit (Coventry, United Kingdom).

Please replace paragraph 32 on page 9 with the following replacement paragraph:

In general, conductive carbonaceous materials may have a pore diameter ~~porosity~~ of about 0.005 micrometers to about 0.2 micrometers, a heat conductivity of about 0.8 watt/Cm-K to about 23 watt/Cm-K, an electric resistivity ~~resistance~~ of about 1 to about 100 Ohms-cm ~~ohm/square~~, and a dielectric constant of about 5 to about 6 at about 10^3 Hertz ~~/Hz~~.

Please replace paragraph 33 on page 9 with the following replacement paragraph:

The concentration of a catalyst (a composition of catalytic species and a carrier) deposited on a support in accordance with one embodiment is preferably in the range of about 10 to 500 μg per cm^3 ~~cm^2~~ (for thin films) or about 1 to 5 grams per cm^3 (for dip-coated supports). The preferred concentration depends at least in part on the support materials. The upper limit of the concentration of catalyst deposited on support varies due to porosity and physical dimensions of the support materials.

Please replace paragraph 38 on page 10 with the following replacement paragraph:

Depending on the type of materials of the conductive support, the reaction desired and the amount of energy needed to be transferred to activate the materials, the resistance of the conductive support may vary by about 2 to 3 orders of magnitude. As previously disclosed, the resistivity ~~resistance~~ of the support may range from about 1 to 500 Ohms-cm ~~ohm/square~~.

Please replace paragraph 41 on page 11 with the following replacement paragraph:

Figure 1 is a schematic illustration of an embodiment of the present invention where heat generation from the support using electricity is the source of energy transfer to the catalyst. That is, electrical energy is applied to the conductive support and the energy generated from the conductive support supplies the needed energy to activate the catalyst materials. Thus, the catalyst itself need not be conductive. (In conventional catalysis, in general, radiation or conductive heat from a furnace generate the energy required for the catalyst). In one embodiment, the catalyst is deposited on a carbon cloth. Electrodes can be attached to this cloth by applying Ag paste to the two end-edges and curing ~~currying~~ at 500 °C for 5 hours to make it conductive.

Please replace paragraph 44 on page 12 with the following replacement paragraph:

In another embodiment ~~the embodiment illustrated in Figure 4~~, it is possible to conduct the activation of a catalyst laden media column by use of microwave energy. The column may be subjected to low levels of microwaves, supplying adequate energy to heat the water in the beads sufficiently for the local activation of the catalyst by the conductive support.